

CLAIMS

1. Apparatus for supporting loads from a vessel at sea using fibre rope, said apparatus including a tensioning device mounted substantially vertically used to grip
5 the fibre rope, said tensioning device supporting the load and facilitating the paying out and hauling in of the rope.
2. Apparatus as claimed in claim 1 wherein said tensioning device comprises multiple units mounted around the fibre rope axis, each having at least one contact pad
10 for engaging the fibre rope over a corresponding part of its circumference.
3. Apparatus as claimed in claim 2 wherein the or each contact pad has a curved contact surface whose radius of curvature is substantially greater than the radius at which the pad is arranged to engage the rope.
- 15 4. Apparatus as claimed in claim 2 or 3 wherein the or each contact pad has a curved contact surface which subtends an angle of arc substantially less than one whole circle divided by the number of units mounted around the fibre rope axis.
- 20 5. Apparatus as claimed in claim 3 or 4 wherein there are provided three units whose contact surfaces when brought together form a shape that is substantially triangular with sides curved outwards.
6. Apparatus as claimed in claim 3 or 4 wherein there are provided four units
25 whose contact surfaces when brought together form a shape that is substantially square with sides curved outwards.
7. Apparatus as claimed in any of claims 2 to 6 wherein each unit of the tensioning device comprises a plurality of segments connected to form a continuous track.

8. Apparatus as claimed in any of claims 2 to 6 wherein said tensioning device comprises at least one clamp mounted so as to be movable under load in the direction of the rope axis.
- 5 9. Apparatus as claimed in claim 8 wherein there are provided two clamps which are operable to move relative to each other in a sequential manner upwardly and downwardly, and to hand over the grip on the rope from one clamp to the other so as to achieve continuous movement of the rope and load.
- 10 10. Apparatus as claimed in any preceding claim wherein said tensioning device has a form and features suitable for pipe laying operations, but provided with shoes specially adapted for the characteristics of the fibre rope.
- 15 11. Apparatus as claimed in any preceding claim wherein a storage reel for said fibre rope is arranged such that substantially the entire load in the fibre rope is taken by said tensioning device.
- 20 12. Apparatus as claimed in claim 11 operable such that some back-tension is maintained on the reel for control of the rope.
13. Apparatus as claimed in any preceding claim wherein the tensioning device is mounted so as to suspend the rope from beside the vessel.
- 25 14. Apparatus as claimed in any preceding claim wherein the tensioning device is mounted so as to suspend the rope via a moonpool.
15. Apparatus as claimed in any preceding claim wherein contact pads of said tensioning device are made deformable.
- 30 16. Apparatus as claimed in any preceding claim wherein arrays of contact elements of said tensioning device on opposite sides of the rope axis are staggered so as to induce snaking of the rope under radial gripping pressure.

17. Apparatus as claimed in any preceding claim in combination with a rope having stoppers embedded in the rope at intervals along its length.

5 18. Apparatus as claimed in claim 17 wherein gripping elements of the tensioning device having spacing corresponding to said stoppers.

19. A method of supporting a load from a vessel at sea using fibre rope wherein a tensioning device mounted is substantially vertically and used to grip the fibre rope,
10 said tensioning device supporting the load and facilitating the paying out and hauling y-in of the rope.

20. A method as claimed in claim 19 wherein substantially the entire load in the fibre rope is taken by said tensioning device, and parts of the rope under tension are not
15 diverted substantially from vertical.

21. A method as claimed in claim 20 wherein some back-tension is maintained on the reel for control of the rope.

20 22. A method as claimed in claims 19 to 21, wherein the tensioning device is adapted as claimed in any of claims 3 to 18.

23. Rope specifically adapted for use in a method or apparatus as claimed in any preceding claim.

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24. Gripping arrangement for a fibre rope wherein there is provided a plurality of contact pads, said pads being arranged longitudinally and circumferentially around the fibre rope axis and wherein the contact area of each pad is curved and the radius of curvature of the contact surface of each pad is substantially greater than the radius at
30 which the pad is arranged to engage the rope.

25. Gripping pad arrangement for a fibre rope wherein there is provided a plurality of pads, said pads being arranged longitudinally and circumferentially around the fibre rope axis and wherein the contact area of each pad is curved and the angle of are suspended by the curved surface of each pad is substantially less than one whole circle
5 divided by the number of units.

26. Gripping pad arrangement as claimed in claim 25 wherein there are provided groups of three pads arranged around the rope axis to form when brought together a shape that is substantially triangular with sides curved outwards.
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27. Gripping pad arrangement as claimed in claim 25 wherein there are provided four pads arranged to form when brought together a shape that is substantially square with sides curved outwards.